



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/530,242

06/06/2005

Jochen Baumeister

12834-00012-US

9928

23416

7590

03/25/2009

CONNOLLY BOVE LODGE & HUTZ, LLP

P O BOX 2207

WILMINGTON, DE 19899

EXAMINER

FORTUNA, ANA M

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

03/25/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/530,242

**Applicant(s)**

BAURMEISTER ET AL.

**Examiner**

Ana M. Fortuna

**Art Unit**

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 July 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date 7/23/08, 1/19/08, 6/9/05, 4/4/05
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_



**DETAILED ACTION**

1. Claims 1-20, and 22-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1, step d) recites "treatment of the membrane formed in step c) until it is self supported"; the claim is incomplete and indefinite regarding to the type of treatment performed on the membrane, is it drying the membrane? Claim 22 recites the time of treatment but does not refer to a particular treatment. Claim 30 is unclear regarding to whether the claim should refer to the catalytic active substance or claim 28. Additional claims are rejected as depending on rejected claim 1.

***Double Patenting***

2. Claim 1-32 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-40 of U.S. Patent No. 7,235,320 in view of WO 02/386,650 (herein after WO'650). Although the conflicting claims are not identical, they are not patentably distinct from each other because patent US 7,235,320 claims a polyazole membrane made from compounds suitable for making the polyazole, as in step B) of present invention, and including the steps of heating, forming the layer and treatments according to steps c and -D. The patent lacks the formation of a catalyst layer on the polyazole membrane. WO'650 teaches the formation of a catalyst layer on polyazole membrane to produce a film electrode catalyst layer and the process of producing the layer (abstract or entire disclosure). It would have been obvious to one skilled in this art at the time this invention was made to provide a polyazole

Art Unit: 1797

membrane, e.g. polybenzazole, such as PBI membrane with a catalyst layer, to provide the properties suggested in WO'650.

3. Claims 1-32 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-71 of copending Application No. 10/489,396. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1 and 46 include the membrane limitations including the catalytic layer as require in the above claims. Providing the catalytic layer by conventional methods would have been obvious to the skilled artisan at the time this invention was made.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-3, 8, 10-25, 31, 32 are rejected under 35 U.S.C. 102(e) as being anticipated by Muller et al (US 2004/0186189). Muller et al. teaches the membrane made from polyazole polymer at the claimed conditions A) D), and further provided with a catalytic layer (Abstract, paragraphs [0001], [0011]-[0055],

Art Unit: 1797

[0043]). The process of making the membrane in presence of phosphoric acid is detailed in this publication (see paragraphs ([0046], [0056]-[0060]; [0081-0092], and [0095]-[0101])). The particular polyazole units or structures in the membrane are further disclosed in the publication ([0037]-[0040]).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 4, 5, 6, 7, 26-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muller et al (2004/0186189) in view of Bevers et al (US 5,761,793) or Wilson (US 5,211,984). Muller et al teaches the membrane made from the composition and under the conditions as claimed in claim 1, and dependent claims as discussed above. The application of the catalyst on polyazole membrane by means of a powder, or using a powder to form the catalyst layer, e.g by depositing the grains or catalyst particles on the membrane surface is not disclosed in the publication of Muller et al. Patent '793 teaches providing a solid electrolyte layer on a solid electrolyte membrane for fuel cell use, while the solid electrolyte is still soft (abstract), it would have been obvious to one skilled in the art at the time this invention was made to form a catalytic layer on a polymeric membrane, such as the membrane of Muller et al. alternatively by conventional method, by providing a powder layer as suggested

Art Unit: 1797

in '793. The resulting membrane is expected to have reactive properties. The powder material can be selected as platinum (column 3, last paragraph; column 2, lines 32-column 3, line 3). The powder is applied by the application of pressure (column 6, lines 25-30). Applying the catalysis in solution, e.g. by means of a solvent is further suggested in '793 (column 2, lines 13-22). It would have been obvious to one skilled in the art to use conventional methods of coating a layer of catalyst on an electrolyte membrane, as the methods suggested in '793, to provide the catalytic properties required on the membrane of Muller et al. As to claim 7, it would have been obvious to one skilled in the art to provide the acid on the coated membrane, based on suggestions of Muller et al of doping the membrane with phosphoric acid (claim 12). As to claim 9, hot pressing the membrane to form the power catalyst layer is discussed in the paragraphs discussed above. Regarding claims 26-30, the thickness of the layer is not disclosed in Muller et al. Patent '793 suggests the thickness, grain size and materials (see column 5, lines 3, lines 50-68; and column 6, lines 52-12). Wilson ('984) is cited as cumulative as teaching carbon supported catalyst layer provided on a polyelectrolyte membrane in the form of a solution, to form a proton conductive material (column 2, lines 45-column 3, line 16; column 5, lines 48-column 6, line 9; and column 4, last paragraph). The later reference further supports conventional coating method of providing the catalyst layer on a membrane.

***Information Disclosure Statement***

All the cited references are considered by the Examiner, copy of Forms 1449 are attached.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ana M. Fortuna whose telephone number is (571) 272-1141. The examiner can normally be reached on 9:30-6:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R. Sample can be reached on (571) 272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ana M Fortuna  
Primary Examiner  
Art Unit 1797

Art Unit: 1797

/Ana M Fortuna/

Primary Examiner, Art Unit 1797